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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/746,900	12/22/2000	Rao Annapragada	LAM1P157/P0718	1910

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EXAMINER

CROWELL, ANNA M

ART UNIT

PAPER NUMBER

1763

DATE MAILED: 04/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Applicant No. <i>7m 5</i>	Applicant(s)
	09/746,900	ANNAPRAGADA ET AL.
	Examiner Michelle Crowell	Art Unit 1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) Responsive to communication(s) filed on 19 February 2003.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) Claim(s) 1-19 is/are pending in the application.

4a) Of the above claim(s) 15-18 is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1-14 and 19 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some \* c) None of:

1. Certified copies of the priority documents have been received.

2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.

3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.

4) Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.

5) Notice of Informal Patent Application (PTO-152)

6) Other: \_\_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-5, 8-9, 13-14, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Lenz et al. (U.S. 5,534,751).

Referring to Figure 1, column 4, line 48 – column 5, line 15, and column 6, lines 16-29, Lenz discloses a plasma etching apparatus comprising a plasma chamber 12, a ring assembly 30 (plasma confinement device, plasma rings), a gas inlet (col. 5, lines 1-3), an upper electrode 14, a lower electrode 13 (chuck), and an outlet (col. 5, lines 4-5, exhaust system). The lower electrode 13 supports a workpiece 16 (substrate) to be etched. The ring assembly 30 includes a stack of spaced apart circular plasma rings 32. In one experiment, the pressure inside the chamber 12 is 50 mTorr (col. 7, lines 21-25).

Regarding claim 1, the gas sources comprising fluorine and ammonia are considered a matter of intended use since the plasma etching apparatus can be supplied with any type of gas based on the desired process. It is well settled that the intended uses of and the particular material used in an etching apparatus have no significance in determining patentability of apparatus claims. *Ex parte Thiabault*, 164 USPQ 666 (BD. Pat. App. 1969). See MPEP 2115.

Regarding claim 3, the stack is considered a matter of intended use since an article worked upon in an etching apparatus has no significance in determining patentability of apparatus claims. Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim." Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969). Furthermore, "the inclusion of material or **article worked** upon by a structure being claimed does not impart patentability to the claims." In re Young, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in In re Otto, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 6, 7, and 10-12 rejected under 35 U.S.C. 103(a) as being unpatentable over Lenz et al. (U.S. 5,534,751) in view of Westendorp et al. (U.S. 5,565,036).

The teachings of Lenz are discussed above.

Lenz fails to teach the electrodes spaced apart less than 2 cm.

Referring to column 6, lines 3-7, lines 51-54, Westendorp teaches that it is known for the upper electrode 12 and the lower electrode 14 to be spaced apart a distance less than one centimeter (less than 2 cm). High processing rates result from a small electrode spacing. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to space

the electrodes of Lenz apart as taught by Westendorp. When electrodes are space apart less than one centimeter, high processing rates result.

5. Claims 6, 7, and 10-12 rejected under 35 U.S.C. 103(a) as being unpatentable over Lenz et al. (U.S. 5,534,751) in view of Ishida et al. (Japanese Patent Publication 05-234594).

The teachings of Lenz are discussed above.

Lenz fails to teach the electrodes spaced apart less than 2 cm.

Referring to column 6, lines 3-7, lines 51-54, Ishida teaches that it is known for the upper electrode 12 and the lower electrode 14 to be spaced apart a distance between 1-15 centimeters. Etching rate uniformity is improved based on the electrode spacing. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to space the electrodes of Lenz apart as taught by Ishida. Etching rate uniformity is improved based on the electrode spacing.

#### *Response to Arguments*

6. Applicant's arguments filed February 19, 2003 have been fully considered but they are not persuasive.

**Applicant has argued that Lenz et al. does not provide an intended operation using fluorine and ammonia.**

The prior art only has to provide a structure that is capable of performing in the manner claimed. In this case, Lenz provides a gas source (structure) which is capable of providing any type of gas. The types of gases (ammonia and fluorine) used are considered intended use. Therefore, it is well settled that the intended use of a claimed

apparatus is not germane to the issue of the patentability of the claimed structure. If the prior art is capable of performing the claimed use, then it meets the claim (In re Casey, 370 F.2d 576, 152 USPQ 235 (CCPA 1967)).

**Applicant has argued that Lenz fails to disclose a pressure maintained below 300 mTorr.**

The pressure inside the chamber 12 is 50 mTorr (col. 7, lines 21-25). Therefore, 50 mTorr is below 300 mTorr.

**Applicant has argued that it is not obvious to combine the electrodes of Lenz with the electrode spacing of Westendrop since Lenz is used for etching and Westendrop is used for deposition.**  
It is noted that Westendrop is used for deposition; however, similar results will occur in an etching apparatus because the etch rate will increase with an electrode spacing of less than 1 cm.

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sugiarto teaches a process that uses both a fluorine gas source and an ammonia gas source.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michelle Crowell whose telephone number is (703) 305-1956. The examiner can normally be reached on M-F (8:00 - 4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on (703) 308-1633. The fax phone numbers for the

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organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

AMC  
AMC  
April 28, 2003

*Luz L. Alejandro*  
Luz L. Alejandro  
Primary Examiner  
Art Unit 1763